

S/N 10/714,355

Amendment dated June 14, 2005

Response to Office Action mailed March 14, 2005

REMARKS

Applicants have received and reviewed an Office Action dated March 14, 2005. By way of response, Applicants have canceled claims 1-18 and added claims 19-46. Claims 19-46 are currently pending. No new matter is added.

Claims 19-25 relate to aminocarboxylate sequestrants that are acetic acid derivatives. Claims 26-46 are variations of claims of the parent application, U.S. Patent Number 6,660,707, but do not recite a solid detergent composition that is "extruded or cast," a potassium salt, or a mixture that hardens within 1 to 20 minutes. Support for the new claims can be found in the specification as filed. Support for claims 19-25 is found at least at page 10, lines 28-31.

For the reasons given below, Applicants submit the newly presented claims are in condition for allowance and notification to that effect is earnestly solicited.

Rejection Under 35 U.S.C. § 103(a)

Claim 1 was rejected under 35 U.S.C. § 103(a) over Gordon et al. (US 5,650,017), Hartman et al. (US 5,559,089), and Bruegge et al. (US 5,061,392). Applicants respectfully traverse these rejections.

The Office Action asserts that it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the proportions of sodium carbonate, alkali metal silicate and organic phosphonate of Gordon et al., Hartman et al., and Bruegge et al. through routine experimentation for best results. Thus, the Office Action asserts a patent will not be granted based upon the optimization of result effective variables when optimization is obtained through routine experimentation unless there is a showing of unexpected results which rebuts the *prima facie* case of obviousness.

The presently claimed invention would not be obvious in view of Gordon et al., Hartman et al. or Bruegge et al. for the following reasons. The present invention is a solid block warewashing detergent composition comprising about 10-80 wt% sodium carbonate, an alkali metal silicate, an organic phosphonate hardness sequestering agent, and is substantially free of a second source of alkalinity. In the claimed technology, the

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material can be formed in a liquid or semi-liquid mixture and is extruded into blocks or cast into plastic capsules.

Applicants have found, under certain extrusion conditions, that a solid detergent can be formed into a block in which a novel E-form hydrate is formed. This E-form hydrate allows for the addition of silicates and carbonates to the composition, while simultaneously allowing for rapid hardening. The solid structure uses this novel hydrated species as a binder that solidifies the matrix materials into a stable solid block (page 3, lines 25-28). The E-form hydrate is the reaction product of water, a carbonate salt, and an organic phosphonate and is not disclosed in the cited references (page 3, line 31, page 4, line 1).

The E-form hydrate is a separate material different and apart from carbonate salts, water, and organic phosphonate materials. The E-form hydrate is not an admixture of the materials but is a distinct and unique material that provides the solid character of the block detergents. Further, Applicants have found that the solid detergents made using the E-form hydrate can be manufactured using easily controlled extrusion technology, can be readily dispensed in a controllable fashion using water spray-on dispensers, and are stable after formation. The solidification using the novel E-form hydrate can only be formed using the technology of the invention and cannot arise through tablet compression.

In order to obtain a prima facie case of obviousness against the claims of the invention, the Examiner must produce sufficient proof that the E-form hydrate is formed in the products of the prior art. For example, the pelletized material of the prior art has insufficient water and organic phosphonate to form the E-form hydrate. More importantly, pelletizing processes by their very nature reduce the tendency of the materials to react to form a separate reaction product. The E-form hydrate is made in Applicant's invention in a liquid material that combines the ingredients and is extruded to form the solid block. This liquid material has sufficient reaction time and concentration of the materials recited in the claims to form the appropriate E-form hydrate.

One of ordinary skill in the art would not learn from these references that solid block material could be made by solidifying active ingredients with an E-form hydrate made by reacting carbonate, organic phosphonate, and water in a solidification

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mechanism. Such a solidification mechanism cannot operate in a process of powder blending or compressing a tablet. Since these references provide no motivation for one of ordinary skill in the art to formulate an E-form hydrate binder containing block detergent, the presently claimed invention would not have been obvious.

The Examiner's statement that mere optimization is not equivalent to patentability is misplaced. While optimizing a compressed tablet under the guidance of the cited decisions might be obvious, forming a solid block detergent using the E-form hydrate is not optimization. Further, the other differences discussed above do not constitute optimization. The cited references fail to teach the ratios and percentages of the components of the presently claimed invention. It is the use of these ratios and percentages that result in the creation of the E-form hydrate binding complex. Mere optimization would not result in the unexpected success achieved by Applicants.

Further, none of the references cited by the Examiner, alone or in combination, teach, suggest or appreciate the problem of lack of sufficiently rapid hardening upon addition of silicates to carbonate based solid block detergents. Clearly, the presently claimed invention results in formation of the appropriate E-form hydrate as discussed above. It is incumbent on the Examiner to show that the prior art materials form the E-form hydrate or the rejections should be withdrawn.

With respect to the particular rejections set forth by the Examiner, Applicants provide the following additional comments.

Gordon et al.

The presently claimed invention would not be obvious in light of Gordon et al. because Gordon et al. fail to teach the E-form hydrate composition as recited in the claims. Nothing in the cited reference teaches the blend of water, organic phosphonate, and carbonate as recited by the instant claims. The materials of Gordon et al. are simply made by combining particulate materials and compressing them into a tablet if desired. In contrast, the E-form hydrate is made in a reaction between the water, carbonate, and organic phosphonate components of the detergent mixture which forms under conditions such as casting or extrusion process with a liquid or semi-liquid input. The materials

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disclosed in Gordon et al. are simply made by combining particulate materials and compressing the tablet if desired. When compressed, the materials cannot react to form the E-form hydrate. Because the materials in Gordon et al. are compressed, no E-form hydrate can be created. Thus, the claimed structures are physically and chemically different than the prior art materials.

Gordon et al. do not require a silicate but require a silica in its compressed tablets. A silicate is simply an optional item of little importance to Gordon et al. While under certain conditions silica can be converted to silicate, the process disclosed in Gordon et al. keeps the silica as silica. The need for silica and not silicate is shown in Gordon et al. at col. 3, line 57 through col. 4 line 7, which states in relevant part "the compositions according to the present invention are silicate free".

Accordingly, based on the foregoing differences, is respectfully submitted that the reference cited neither teaches nor suggests the presently claimed compositions, and withdrawal of this rejection is respectfully requested.

Hartman et al.

The presently claimed invention would not be obvious in view of Hartman et al. because this reference teaches a material substantially different than that claimed. The claimed materials of the invention include a solid detergent that can be made by extruding or casting liquid materials into a solid block form. In sharp contrast, Hartman et al. teach a granulated spray or other powder-like detergent material that is blended from dry ingredients and then agglomerated into a flowable granular detergent (col. 20, line 54 to col. 21, line 20). Hartman et al. fail to teach how a solid block material could be made by solidifying active ingredients with an E-form hydrate made by reacting the materials as presently claimed, nor does Hartman et al. provide any motivation for doing so. The materials of the Hartman et al. are simply made by combining particulate materials and compressing into a tablet if desired. While Hartman et al. use sodium carbonate as an ingredient in his powder mixtures, Hartman et al. do not use water, carbonate, and organic phosphonate in the proportions recited by the present claims and

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under the conditions that would result in the formation of the E-form hydrate. Thus, Hartman et al. fail to teach the E-form hydrate composition as recited in the claims.

One of skill in the art would not use the teachings of Hartman et al. to develop an extruded or cast solid composition, but rather would use the teachings to develop a compressed detergent composition wrapped in a water soluble dissolvable film, given that Hartman et al. teach tablet formation by compression. Further one would not look to Hartman et al. for manufacturing applicants' material. Hartman et al. is directed to a granular material having a special kind of bleaching function. Such a bleaching function arises from the use of a mono per sulfate material which must be used under controlled alkaline conditions for effectiveness.

Additionally, in the Hartman et al. disclosure, silicate is viewed simply as a pH adjusting material not as a material critical for cleaning with metal protecting (non corrosion) properties. Hartman et al. state at col. 14, lines 57-58:

The compositions herein also contain at least one source of alkalinity so as to achieve an in-use pH above 7.

Hartman et al. are directed to a different invention than claimed. Accordingly, based on the foregoing differences, is respectfully submitted that the reference cited neither teaches nor suggests the presently claimed compositions, and withdrawal of this rejection is respectfully requested.

Bruegge et al.

The presently claimed invention would not be obvious in view of Bruegge et al. for the following reasons. Bruegge et al. teach a method of forming a thickened, but still liquid paste detergent composition by combining two separate aqueous solutions. While Bruegge et al., with no detail, disclose that the two components can be combined in an extruder and the formed detergent extruded as a defined shape, Bruegge et al. do not teach how such an extrusion process can be accomplished and in fact teaches away from such an extrusion process. Bruegge et al. do not teach the essential organophosphate component. Bruegge et al. do not teach what proportions of components are required or

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what conditions are required to extruded the formed detergent as a defined shape. Bruegge et al. do not disclose an example wherein the ingredients are in the bounds of the presently claimed invention. In fact, all 46 examples of Bruegge et al. result in paste materials.

Because Bruegge et al. do not teach how to form an extruded composition in a defined shape, due to the fact that Bruegge et al. teach away from extrusion of a formed detergent for preference of forming a paste detergent composition, an undue experimental burden would be placed on one of skill in the art to use the teachings of Bruegge et al. to extrude a formed detergent in a defined shape. As such, Bruegge et al. do not make obvious any extruded detergent composition comprising silicate, and certainly does not make obvious the E-form hydrate made by reacting carbonate, organic phosphonate, and water in a solidification mechanism of the claimed invention.

Accordingly, based on the foregoing differences, is respectfully submitted that the reference cited neither teaches nor suggests the presently claimed compositions, and withdrawal of this rejection is respectfully requested.

Double Patenting

Claim 1 was rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of each of US 6,156,715, US 6,410,495, and US 6,660,707; over claim 15 of US 6,177,392 in view of Backes et al., US 5,419,850; and over claim 1 of US 6,258,765 in view of Backes et al.

In response, Applicants have submitted herewith a Terminal Disclaimer in order to obviate these rejections. Applicants respectfully request that this rejection be withdrawn.

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Summary

In summary, each of claims 19-46 is in condition for allowance, and Applicants respectfully request notification to that effect. The Examiner is invited to contact Applicants' undersigned representative at the telephone number listed below, if the Examiner believes that doing so will advance prosecution of this application.

Respectfully submitted,

Merchant & Gould P.C.
P.O. Box 2903
Minneapolis, MN 55402-0903
612/332-5300

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By: Mark T. Skoog

Mark T. Skoog
Reg. No. 40,178
MTS:hjk

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PATENT TRADEMARK OFFICE